

Application No. 10/511,505
Amendment dated December 15, 2008
After Final Office Action of October 15, 2008

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Docket No.: 62302(70403)

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1.- 37. (cancelled)

38. (Currently amended) A method of quantifying simultaneously a plurality of elements in a fluid sample adsorbed/absorbed onto or into an inert collection matrix comprising:

(i) exposing the sample to high energy radiation capable of ionizing at least a portion of the sample;

(ii) measuring quantity of a plurality of elements in the ionized portion of the sample by mass spectrometry;

(iii) exposing a matrix-matched Certified Reference Material (CRM), adsorbed/absorbed onto or into a further inert collection matrix, to high energy radiation capable of ionizing at least a portion of the CRM;

(iv) measuring quantity of ionized CRM in the ionized portion of the sample by mass spectrometry, and

(v) determining quantity of the plurality of elements in the sample with reference to the CRM.

39. (Currently amended) A method of quantifying simultaneously a plurality of elements in a fluid sample adsorbed/absorbed onto or into an inert collection matrix, which collection matrix also includes a pre-loaded Certified Reference Material (CRM), comprising:

(i) exposing the matrix to high energy radiation capable of ionizing at least a portion of the sample and a portion of the CRM;

(ii) measuring quantity of a plurality of elements in the ionized portion of the sample and quantity of ionized CRM by mass spectrometry, and

(iii) determining quantity of the plurality of elements in the sample with reference to the CRM.

40. (Currently amended) A method of quantifying simultaneously a plurality of elements in a fluid sample supported on an impermeable substrate, comprising:

(i) exposing the sample to high energy radiation capable of ionizing at least a portion of the sample;

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(ii) measuring quantity of a plurality of elements in the ionized portion of the sample by mass spectrometry;

(iii) exposing a matrix-matched Certified Reference Material (CRM), adsorbed/absorbed onto or into a further inert collection matrix, to high energy radiation capable of ionizing at least a portion of the CRM;

(iv) measuring quantity of ionized CRM in the ionized portion of the sample by mass spectrometry, and

(v) determining quantity of the plurality of elements in the sample with reference to the CRM.

41. (Previously presented) The method according to any one of claims 38 to 40, wherein the CRM is selected from the group consisting of SARM 1, 3 and 46, and SY-2.

42. (Previously presented) The method according to any one of claims 38 to 40, wherein the inert collection matrix is part of a sample collection device comprising said inert collection matrix capable of adsorbing or absorbing a fluid sample, and a solid support, wherein the inert matrix is affixed to an area of the solid support.

43. (Previously presented) The method according to any one of claims 38 to 40, wherein the collection matrix is selected from the group consisting of aragonite, aluminium hydroxide, titania, glucose, Starch "A", Starch "B", glucodin, cellulose powder/granules, fibrous cellulose, hydroxy butyl methyl cellulose, vegetable flour or mixtures thereof.

44. (Previously presented) The method according to claim 43, wherein the vegetable flour is selected from the group consisting of rice, maize, wheat, soy, rye and corn flour, or mixtures thereof.

45. (Previously presented) The method according to claim 43, wherein the collection matrix is fibrous cellulose.

46. (Previously presented) The method according to claim 45, wherein the fibrous cellulose matrix is modified by oxidation and/or acid hydrolysis.

47. (Previously presented) The method according to claim 46, further comprising, on or within the matrix, one or more pre-calibrated selected analytes as internal standard.

48. (Previously presented) The method according to claim 47 wherein the pre-calibrated analytes are represented by or selected from the sets:

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Li, B, Mg, Al, Si, P, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, As, Se, Sr, Y, Zr, Mo, Ag, Cd, Sn, Sb, Ba, La, Ce, Hf, Hg, Pb and U or

Li, Na, Mg, Al, P, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, As, Se, Rb, Sr, Mo, Cd, Sn, Sb, Te, Ba, La, Ce, Eu, Dy, Yb, Hg, Tl, Pb, Bi, Th and U.

49. (Previously presented) The method according to claim 42, wherein the solid support comprises a bar-code incorporating information on the sample.

50. (Previously presented) The method according to claim 42, wherein the sample collection device further comprises an integral or separate cover sheath, which covers the matrix.

51. (Previously presented) The method according to claim 42, wherein the sample collection device has multi-layer construction and wherein the collection matrix layer is sandwiched between two supporting layers, one of said supporting layers having an opening, which exposes an area of the collection matrix.

52. (Previously presented) The method according to any one of claims 38 to 40, wherein the fluid sample is selected from body fluids, oils and water.

53. (Previously presented) The method according to claim 52, wherein the body fluid is selected from whole blood, urine and sweat.

54. (Previously presented) The method according to claim 53, wherein the sample is whole blood and sample size is about 50 μ l to about 100 μ l.

55. (Previously presented) The method according to claim 54, wherein the sample size is about 50 μ l or less.

56. (Previously presented) The method according to any one of claims 38 to 40, wherein the high energy radiation is UV laser radiation.

57. (Previously presented) The method according to claim 56, wherein the laser radiation is a component of Laser Ablation-Inductively Coupled Plasma-Mass Spectrometer (LA-ICP-MS).

58. (Previously presented) The method according to claim 57, wherein the mass spectrometer is selected from quadrupole and Time-of-Flight (TOF).

59. (Previously presented) The method according to any one of claims 38 to 40, wherein the fluid sample is exposed to radiation for a period of from about 10 seconds to about 120 seconds.

60. (Previously presented) The method according to any one of claims 38 to 40, wherein the elements to be detected and/or quantified are selected from dietary trace elements, toxic elements and markers of pollution or wear and tear.

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61. (Previously presented) The method according to claim 42, wherein the matrix or the support comprise one or more wells or indentations to accommodate the fluid sample.